

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:  
a substrate of a first conductivity type;  
an epitaxial layer of said first conductivity type formed over a major  
surface of said substrate;  
5 a plurality of regions of a second conductivity type formed in said epitaxial  
layer, each of said regions of said second conductivity type extending to a first depth  
and laterally spaced from another region of said second conductivity type by a  
distance selected so that said device exhibits the same reverse avalanche energy  
absorption characteristics as a Fast Recovery Epitaxial Diode having a diffusion of a  
10 depth higher than said first depth; and  
a schottky contact layer in contact with said plurality of spaced regions of  
said second conductivity type and regions of said first conductivity type disposed  
between said spaced regions of said second conductivity type.
2. A semiconductor device according to claim 1, wherein said regions of  
said second conductivity type are stripes.
3. A semiconductor device according to claim 2, wherein said regions of  
said second conductivity type are five microns deep.
4. A semiconductor device according to claim 1, wherein said regions of  
said second conductivity type are five microns deep.
5. A semiconductor device according to claim 1, wherein said schottky  
contact layer is comprised of aluminum.

6. A semiconductor device according to claim 1, wherein said distance between a region of said second conductivity type and another region of said second conductivity type is eight microns.

7. A semiconductor device according to claim 1, wherein said distance between a region of said second conductivity type and another region of said second conductivity type is twelve microns.

8. A semiconductor device according to claim 1, wherein said distance between a region of said second conductivity type and another region of said second conductivity type is nineteen microns.

9. A semiconductor device according to claim 1, wherein said distance between said regions of said second conductivity type is between eight microns and nineteen microns.

10. A semiconductor device according to claim 1, wherein said distance between a region of said second conductivity type and another region of said second conductivity type is no more than nineteen microns.

11. A semiconductor device according to claim 1, further comprising a back contact layer disposed over a second major surface of said substrate opposing said first major surface.

12. A method for manufacturing a semiconductor device comprising:  
forming a plurality of regions of one conductivity type in a semiconductive body of another conductivity, each of said regions extending to a first depth;

spacing each of said regions of one conductivity type from another region  
5 of one conductivity type a distance selected so that said device exhibits the same  
reverse avalanche energy absorption characteristics as a Fast Recovery Epitaxial  
Diode having a diffusion of a depth higher than said first depth; and

forming a schottky contact layer over said semiconductive body, wherein  
said schottky contact layer is in contact with said plurality of spaced regions of said  
10 one conductivity and regions of said another conductivity type disposed between said  
spaced regions of said one conductivity.

13. A method according to claim 12, wherein said schottky contact layer  
is comprised of aluminum.

14. A method according to claim 12, wherein said distance between a  
region of said one conductivity type and another region of said one conductivity type  
is eight microns.

15. A method according to claim 12, wherein said distance between a  
region of said one conductivity type and another region of said one conductivity type  
is twelve microns.

16. A method according to claim 12, wherein said distance between a  
region of said one conductivity type and another region of said one conductivity type  
is twelve microns.

17. A method according to claim 12, wherein said distance between a  
region of said one conductivity type and another region of said one conductivity type  
is between eight microns and nineteen microns.

18. A method according to claim 12, wherein said distance between a region of said one conductivity type and another region of said one conductivity type is no more than nineteen microns.

19. A method according to claim 12, further comprising a back contact layer disposed over a second major surface of said substrate opposing said first major surface.

20. A method according to claim 12, wherein said regions of said one conductivity type are stripes.

21. A method according to claim 20, wherein said stripes extend to a depth of five microns.

22. A method according to claim 12, wherein said regions of said one conductivity type are five microns deep.